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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/591,221

08/31/2006

Steven Porter Hotelling

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Thomson Licensing LLC

P.O. Box 5312

Two Independence Way

PRINCETON, NJ 08543-5312

EXAMINER

CHAPMAN JR, JOHN E

ART UNIT

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/591,221	<b>Applicant(s)</b> HOTELLING ET AL.	
	<b>Examiner</b> John E. Chapman	<b>Art Unit</b> 2856	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 20 April 2009.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,3-7,9-11,22 and 23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3-7,9-11,22 and 23 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on April 20, 2009 has been entered.

2. Claim 10 is objected to because of the following informalities: In claim 10, "a driver" in line 1 constitutes a double recitation of elements, since "a driver" is previously recited in claim 1. Appropriate correction is required.

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claim 23 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The disclosure, as originally filed, fails to provide support for a programmable digital accumulator that accumulates a programmable number of digital samples of the analog signal

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from the sensor and transmits, through at least one of the suspension members, digital data indicative of the rotation of the assembly to the external controller, the programmable number of digital samples from the analog signal allowing a flexible response time.

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1, 5-7 and 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okoshi et al. (6,880,399) in view of Chida et al. (GB 2378517) and Hayworth et al. (6,823,734).

Okoshi et al. discloses a motion sensor comprising an assembly (30) having suspension members (44), the suspension members isolating the assembly and components mounted on the assembly from vibrations (col. 6, lines 1-13) and passing signals between at least one component mounted on the assembly and an external computer not mounted on the assembly (col. 8, lines 46-52); a vibrating member (21) mounted on the assembly; a driver (25, 26) mounted on the assembly for driving the vibrating member; and a sensor (27) mounted on the assembly for detecting movement of the vibrating member in response to rotation of the assembly (col. 8, lines 41-43), the sensor outputting an analog signal responsive to the rotation of the assembly; and an IC (35) mounted on the assembly and coupled to the sensor and the suspension members, the IC receiving the analog signal from the sensor and transmitting, through at least one of the suspension members (44), data indicative of the rotation of the assembly to the computer. The

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only difference between the claimed invention and the prior art consists in providing a digital electronics on the assembly for applying a drive signal to the driver and for transmitting a digital signal to the external computer. Chida et al. discloses a motion sensor (10A) and a circuit device (10B) in Fig. 10 comprising a driving circuit (70) and an output circuit (90). See paragraph [0090]. Accordingly, it would have been obvious to one of ordinary skill in the art to incorporate a driving circuit in the IC (35) of Okoshi in order to drive the vibrating member (21). Chida further teaches implementing that the controller (shown in Fig. 7) can be implemented using a single special purpose integrated circuit (ASIC)(see paragraph [0097]), and Hayworth et al. teaches providing a digital application specific integrated circuit (ASIC) in order to provide a compact, lightweight and inexpensive precision inertial reference unit (col. 5, lines 41-47). Accordingly, it would have been obvious to provide an ASIC for the IC (35) of Okoshi et al. in order to provide a compact, lightweight and inexpensive precision inertial reference unit.

Regarding claim 5, it is well known in the art and would have been obvious to one of ordinary skill in the art to store a calibration value in order to provide a calibrated output signal.

Regarding claim 6, it is well known to determine the calibration value externally.

Regarding claim 7, it is well known to determine the calibration value internally.

Regarding claim 9, it is well known in the art to control the amplitude of vibration of a vibrating member.

Regarding claim 10, it is well known in the art to control the startup frequency of the driver of a vibrating member.

Regarding claim 11, it would have been obvious to use an auto-calibration loop that uses an externally provided calibration factor.

7. Claims 3, 4 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okoshi in view of Chida and Hayworth as applied to claim 1 above, and further in view of Hamisch et al. (5,247,252) or Henderson et al. (5237,871).

Regarding claims 3 and 22, the only further difference between the claimed invention and the prior art consists in using helical springs to mount the assembly (30) of Okoshi et al. Hamisch discloses contact springs 18 for both the elastic suspension of the sensor (10) and the transmission of the electric measuring signal (see col. 3, lines 47-54). Henderson discloses springs (36) for suspending a sensor as well as providing electrical connection (see col. 6, lines 34-37). Accordingly, it would have been obvious one of ordinary skill in the art to use helical springs to mount the assembly (30) of Okoshi et al.

Regarding claim 4, using a serial digital communication protocol is common in the art.

8. Applicant's arguments filed April 20, 2009 have been fully considered but they are not persuasive. Regarding the rejection of claims under 35 U.S.C. 103(a) as being unpatentable over Okoshi et al. in view of Hayworth et al., applicant argues that one of ordinary skill in the art would appear to have no motivation for combining Hayworth with Okoshi in the manner proposed by the examiner. However, the mere substitution of digital electronics for analog electronics is generally regarded as within the level of ordinary skill in the art, and one of ordinary skill would have been motivated to provide a digital application specific integrated circuit (ASIC) in order to provide a compact, lightweight and inexpensive precision inertial reference unit, as taught by Hayworth et al. (col. 5, lines 41-47). Accordingly, merely to provide

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an ASIC for the IC (35) of Okoshi et al. would have been obvious to one of ordinary skill in the art. In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

Regarding new claim 23, applicant argues that support can be found in claim 1 and on page 16 of the application. However, claim 1 as originally filed made no reference to either a programmable digital accumulator that accumulates a programmable number of digital samples of the analog signal from the sensor or the programmable number of digital samples from the analog signal allowing a flexible response time. Likewise, no reference to either a programmable digital accumulator that accumulates a programmable number of digital samples of the analog signal from the sensor or the programmable number of digital samples from the analog signal allowing a flexible response time can be found on page 16 of the specification as originally filed. Consequently, it is not evident that the disclosure, as originally filed, provides support for the invention claimed.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John E. Chapman whose telephone number is (571) 272-2191. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron

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Williams can be reached on (571) 272-2208. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/John E Chapman/  
Primary Examiner  
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